

It is believed that the following listing of claims corresponds to the claims currently presented in this application:

Listing of Claims:

1. (previously presented) An apparatus for accumulating different types of individual articles, said apparatus comprising:
a delivery device which provides an initial-plurality of an initial-type of individual articles;
at least a first-accumulator mechanism which is automated to provide a first-plurality of a first-type of individual articles, said first-type of articles differing from said initial-type of articles, and
said first accumulator mechanism including a first rotatable metering drum;
at least a first-transport-device which moves said first-plurality of articles to a first packing location;
and
an automated assembly mechanism which is configured to operatively combine said first-plurality of articles with said initial plurality of articles;
wherein
said first metering drum has an entry end and an opposite exit end, and is tilted to move said articles down stream through said metering drum from said entry end and out of said opposite exit end; and
said first-accumulator mechanism further includes a stationary plate member located operatively adjacent the exit end of the first metering drum, and positioned relatively downstream from the metering drum to help prevent articles from falling out from the bottom-side of the drum while allowing the drum to rotate past the stationary plate.
2. (original) An apparatus as recited in claim 1, wherein said assembly mechanism includes a co-packing mechanism which is further configured to operatively secure said initial-plurality of articles in combination with said first-plurality of articles.
3. (original) An apparatus as recited in claim 2, wherein
said assembly mechanism includes
an initial packing system which provides an initial package of said initial-type of articles; and
a first transfer-device which is configured to move said first-plurality of articles into a first packing system to provide a first package of the first-type of articles; and
said co-packing mechanism is configured to operatively secure said first-package to said initial-package to provide a first co-package.

4. (withdrawn) An apparatus as recited in claim 1, further including
a second-accumulator mechanism which is automated to provide a second-plurality of a second-
type of individual articles, said second-type of articles differing from said first-type of articles;
and
a second transport device for moving said second-plurality of articles to a second packing location;
wherein
said assembly mechanism is further configured to operatively combine said second-plurality of
articles with said initial-plurality of articles.

5. (withdrawn) An apparatus as recited in claim 4, further including a co-packing mechanism
which is configured to operatively secure said initial-plurality of articles in combination with said
second-plurality of articles.

6. (withdrawn) An apparatus as recited in claim 4, wherein
said assembly mechanism includes
an initial packing system which provides an initial package of said initial-type of articles;
a first transfer-device which is configured to move said first-plurality of articles into a first
packing system to provide a first package of the first-type of articles; and
a second transfer-device which is configured to move said second -plurality of articles into a
second packing system to provide a second package of the second -type of articles;
a co-packing mechanism is configured to operatively secure said initial-plurality of articles in
combination with said first plurality of articles to provide a first co-package; and
said co-packing mechanism is further configured to operatively secure said second -package in
combination with said first co-package.

7. (original) An apparatus as recited in claim 1, wherein said first accumulator mechanism is
configured to accumulate said first-plurality of articles from a quantity of said first-type of articles,
which are arranged as separate individual articles and have a disorderly, non-uniform orientation.

8. (original) An apparatus as recited in claim 1, wherein said first accumulator mechanism includes an input mechanism which delivers a plurality of individual first-articles from a first article supply source into a first guide mechanism, and a first alignment mechanism which orients a first article dimension of each first-article along a selected machine-direction.

9. (canceled).

10. (original) An apparatus as recited in claim 8, wherein said first accumulator mechanism includes a first directing slide.

11. (previously presented) A method for accumulating different types of individual articles, said method comprising:
delivering an initial-plurality of an initial-type of individual articles;
automating a first-accumulator to provide a first-plurality of a first-type of individual articles, said first-type of articles differing from said initial-type of articles;
moving said first-plurality of articles to a first packing location; and
operatively combining said first-plurality of articles with said initial-plurality of articles by employing an automated assembly mechanism;

wherein
said automating of said first-accumulator includes delivering said first-type of individual articles with a rotatable metering drum which has an entry end and an oppositely located exit end, and is tilted to move said articles down stream through said metering drum from said entry end and out of said oppositely located exit end; and
said first-accumulator includes a stationary plate member located operatively adjacent the exit end of the first metering drum, and positioned relatively downstream from the first metering drum to help prevent articles from falling out from the bottom-side of the drum while allowing the drum to rotate past the stationary plate.

12. (original) A method as recited in claim 11, wherein said operative combining of said first-plurality of articles with said initial-plurality of articles includes operatively securing said initial-plurality of articles in combination with said first-plurality of articles with a co-packing mechanism.

13. (original) A method as recited in claim 11, wherein said operative combining of said first-plurality of articles with said initial-plurality of articles includes:
an initial packing of said initial-type of articles to provide an initial package;
moving said first-plurality of articles into a first packing system to provide a first package of the first-type of articles; and
operatively securing said first-package to said initial-package to provide a first co-package.

14. (withdrawn) A method as recited in claim 11, further comprising:
providing a second-plurality of a second-type of individual articles, said second-type of articles differing from said first-type of articles;
moving said second-plurality of articles to a second packing location; and
operatively combining said second-plurality of articles with said initial-plurality of articles by employing said assembly mechanism.

15. (withdrawn) A method as recited in claim 14, further comprising
operatively securing said initial-plurality of articles in combination with said second-plurality of articles by employing a co-packing mechanism.

16. (withdrawn) A method as recited in claim 14, wherein
said operative combining of said first-plurality of articles with said initial-plurality of articles includes
an initial packing of said initial-type of articles to provide an initial package; and
moving said first-plurality of articles into a first packing system to provide a first package of the first-type of articles; and
operatively securing said first-package to said initial-package to provide a first co-package;
and
said operative combining of said second-plurality of articles with said initial-plurality of articles includes
moving said second-plurality of articles into a second packing system to provide a second package of the second-type of articles; and
operatively securing said second-package in combination with said first co-package.

17. (original) A method as recited in claim 11, wherein the automating of said first-accumulator includes delivering a plurality of individual first-type of articles from a first article supply source into a first guide mechanism.

18. (canceled)

19. (original) A method as recited in claim 17, wherein the automating of said first-accumulator includes delivering said first-type of articles into a guide mechanism which includes a directing slide.

20. (original) A method as recited in claim 17, wherein the automating of the first-accumulator further includes orienting a first article dimension of each first-type of article along a selected machine-direction.

21. (canceled)

22. (previously presented) An apparatus as recited in claim 1, wherein the first metering drum includes at least one lug member positioned and attached to a region inside the metering drum at the exit end of the first drum.

23. (previously presented) An apparatus as recited in claim 22, wherein each lug member is sized to operatively engage and isolate at least one of said first-type of individual articles.

24. (previously presented) An apparatus as recited in claim 23, wherein a longitudinal, axial length of each lug member is approximately equal to a major length dimension of the first-type of individual articles.

25. (previously presented) An apparatus as recited in claim 1, wherein the first metering drum includes an exit ramp member operatively positioned at the exit end of the first metering drum, the ramp member configured to extend an operative distance into the volume of the first metering drum, and generally radially, spaced away from an inside, cylindrical wall surface of the first metering drum by a spacing offset distance.

26. (previously presented) A method for accumulating different types of individual articles, said method comprising:
delivering an initial-plurality of an initial-type of individual articles;
automating a first-accumulator to provide a first-plurality of a first-type of individual articles, said first-type of articles differing from said initial-type of articles;

moving said first-plurality of articles to a first packing location; and
operatively combining said first-plurality of articles with said initial-plurality of articles by employing
an automated assembly mechanism;
wherein the automating of said first-accumulator further includes
identifying an article-set which contains a selected, predetermined number of said first-type of
individual articles;
identifying appointed end-articles of said article-set;
identifying a presence of an appointed datum surface with respect to each end-article;
forming at least one article-set, which contains said selected number of the first-type of articles
arranged in a configuration suitable for packaging.

27. (previously presented) A method for accumulating different types of individual articles,
said method comprising:
delivering an initial-plurality of an initial-type of individual articles;
automating a first-accumulator to provide a first-plurality of a first-type of individual articles, said
first-type of articles differing from said initial-type of articles;
moving said first-plurality of articles to a first packing location; and
operatively combining said first-plurality of articles with said initial-plurality of articles by employing
an automated assembly mechanism;
wherein the automating of said first-accumulator further includes selectively indexing a movable
carriage between a first carriage position and at least a second carriage position, thereby providing
a selected face-alignment of a datum surface of said first-type of individual articles wherein:
said first carriage position has been configured to provide for a first, twist displacement of the
article;
said second carriage position has been configured to provide for a second, twist displacement of
the article that is directionally opposite to said first twist displacement;
at least one article-set has been identified, the article-set containing a predetermined plurality of
the first-type of individual articles;
a pair of end-articles of the article-set have been identified;
a presence of an appointed datum surface with respect to each end-article has been detected; and
the method has been configured to appropriately orient each end-article so that both of the end-
articles of the article-set have their datum surfaces positioned toward an interior of their
corresponding article set, or both of the end-articles have their datum surfaces positioned
toward an exterior of their corresponding article set.

28. (previously presented) A method for accumulating different types of individual articles, said method comprising:

- delivering an initial-plurality of an initial-type of individual articles;
- automating a first-accumulator to provide a first-plurality of a first-type of individual articles, said first-type of articles differing from said initial-type of articles;
- moving said first-plurality of articles to a first packing location; and
- operatively combining said first-plurality of articles with said initial-plurality of articles by employing an automated assembly mechanism;

wherein the automating of said first-accumulator further includes

- inputting a plurality of individual articles from an article supply source, each article having
 - at least a first major facing surface,
 - a first article dimension extending along a first article direction,
 - a second article dimension extending along a second article direction which differs from said first article direction, and
 - an article edge region;
- directing each article to a first conveyor;
- aligning said first article dimension of each article along a selected machine-direction;
- identifying an article-set which contains a selected, predetermined number of said articles;
- identifying appointed end-articles of said article-set;
- identifying a presence of an appointed datum surface with respect to each end-article;
- orienting each end-article so that both of the end-articles of the article-set have their datum surfaces positioned toward an interior of their corresponding article set, or both of the end-articles have their datum surfaces positioned toward an exterior of their corresponding article set;
- forming at least one article-set, which contains said selected number of the first-type of articles arranged in a configuration suitable for packaging; and
- moving said article-set into a package.